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Texas Instruments Inc.
v.
International Trade Commission
Court of Appeals, Federal Circuit

Nos. 92-1168,-1218, and Nos. 92-1282, -1288, -1319,
-1320

Decided March 10, 1993
United States Patents Quarterly Headnotes

PATENTS

[1] Infringement -- Construction of claims (Section 120.03)
Patent construction -- Claims -- Defining terms (Section 125.1305)

"Whereby" clause that merely states result of limitations in claim adds nothing to claim's patentability or substance; International Trade Commission, in construing "whereby" and "to preclude" clauses in claimed process for encapsulating electronic components in plastic, did not err by determining that clauses only express necessary results of what is recited in claims, and by giving clauses no weight in its infringement analysis.

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[2] Infringement -- Construction of claims (Section 120.03)
Patent construction -- Claims -- Defining terms (Section 125.1305)

International Trade Commission, in construing claims for encapsulating electronic components in plastic, did not err by construing claim which calls for "electrical connections between electrical terminals of the device and a plurality of conductors arranged substantially parallel to one another" to require parallelism among all conductors used, based upon claim language, specification and drawings, and witness testimony.

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[3] Infringement -- Defenses -- Prosecution history estoppel (Section 120.1105)

Amendment of claim in light of prior art reference is not sine qua non to establish prosecution history

estoppel; rather, applicant's unmistakable assertions to Patent and Trademark Office in support of patentability, whether or not required to secure allowance of claim, also may operate to preclude patentee from asserting equivalency between limitation of claim and substituted structure or process step.

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[4] Infringement -- Defenses -- Prosecution history estoppel (Section 120.1105)

International Trade Commission did not err in concluding that patentee is estopped from asserting that "same-side gating process," in claim for encapsulating electronic components in plastic, is equivalent of "opposite-side gating process," even though no references cited by examiner disclosed same-side gating, and inventors never amended claim to add opposite-side gating limitation to distinguish and overcome prior art reference, since inventors, by expressly stating that claim was patentable because of opposite-side gating limitation, and by previously admitting that same-side gating was known in art, unmistakably excluded same-side gating as equivalent.

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[5] Infringement -- Doctrine of equivalents -- Reverse equivalents (Section 120.0703)

U.S. International Trade Commission -- Procedure (Section 155.02)

Accused infringer's defense to either literal or doctrine of equivalents infringement is not tantamount to raising reverse doctrine of equivalents argument, and thus accused infringer's assertion, in its petition to International Trade Commission for review of administrative law judge's decision, that its devices did not literally infringe does not suffice to preserve its reverse doctrine of equivalents argument.

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[6] Patentability/Validity -- Obviousness -- Relevant prior art -- Particular inventions (Section 115.0903.03)

Patentability/Validity -- Obviousness -- Relevant prior art -- Combining references (Section 115.0905)

International Trade Commission did not err in

concluding that patent claiming process for encapsulating electronic components in plastic would not have been obvious in view of cited prior art references, since references in combination do not suggest invention as whole as claimed, and since, absent such suggestion, use of hindsight reasoning using patented invention as template is impermissible.

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[7] Patentability/Validity -- Obviousness -- Long felt need (Section 115.0909)

Long felt need is analyzed as of date of articulated, identified problem and evidence of efforts to solve that problem, and not simply as of date of most pertinent prior art references.

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[8] Patentability/Validity -- Obviousness -- Double patenting (Section 115.0708)

International Trade Commission did not err in determining that claims for process for encapsulating electronic components in plastic were not invalid for obviousness-type double patenting, since post-restriction addition of claim to earlier-issued patent is consonant with grouping restriction imposed by examiner on grandparent application; even if there were no consonance, claims of patent in suit are patentably distinct from claim of earlier patent.

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[19] U.S. International Trade Commission -- Remedies (Section 155.07)

International Trade Commission did not err by issuing cease and desist order and limited exclusion order against respondent for violation of Tariff Act's Section 337, 19 USC 1337, despite respondent's assertion that it is licensee of complainant, since evidence demonstrated that respondent became licensed only after investigation began, which was considerable period of time after violation was alleged to have begun, and since commission has discretion to fashion remedy that will both permit respondent to enjoy its license and prevent further violations.

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[10] U.S. International Trade Commission -- Remedies (Section 155.07)

Requirement that domestic industry exist within U.S. is jurisdictional prerequisite to International Trade Commission action under Tariff Act's Section 337, 19 USC 1337, and is not intended to insulate importers

who are members of domestic industry from liability.

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Particular patents -- General and mechanical -- Plastic encapsulated circuits

4,043,027, Birchler and Williams, process for encapsulating electronic components in plastic, International Trade Commission holding of validity and infringement affirmed.

*1020 Appeal from the U.S. International Trade Commission.

Complaint filed pursuant to Section 337 of the Tariff Act by Texas Instruments Inc. against Analog Devices, Cypress Semiconductor Corp., Integrated Device Technology Inc., LSI Logic Corp., and VLSI Technology Inc. From ITC decision holding that patent in suit was not invalid and that certain products imported by respondents infringed, and issuing limited exclusion order and cease and desist orders, complainant Texas Instruments and respondents filed appeals. Affirmed.

James F. Davis, of Howrey & Simon, Washington, D.C. (Cecilia H. Gonzalez, Joseph P. Lavelle, John R. Alison, Diana Stein, and Brian T. Foley, Washington; Jay C. Johnson, Thomas R. Fitzgerald, and Patricia L. Ray, Dallas, Texas, with him on brief), for Texas Instruments Inc.

John M. Calimafde, of Hopgood, Calimafde, Kalil, Blaustein & Judlowe (Marvin N. Gordon and Edward M. Reisner, with him on brief), New York, N.Y., for Analog Devices Inc.

Andrea Casson (Lyn M. Schlitt, general counsel and James A. Toupin, assistant general counsel, with her on brief), Washington, D.C., for International Trade Commission.

Paul H. Heller, of Kenyon & Kenyon, Washington, D.C. (John C. Altmiller, Philip J. McCabe, Charles W. Calkins, and John W. Bateman, Washington; Michael A. Ladra, Peter N. Detkin, and Kenneth B. Wilson, of Wilson, Sonsini, Goodrich & Rosati, Palo Alto, Calif., with him on brief), for intervenors.

Before Nies, chief judge, Clevenger, circuit judge, and Kaufman, senior district judge (District of Maryland, sitting by designation).

Clevenger, J.

In these appeals, consolidated for the purpose of decision, Texas Instruments Incorporated (TI), Analog Devices, Incorporated (Analog), Cypress Semiconductor Corporation, Integrated Device Technology, Incorporated, LSI Logic Corporation, and VLSI Technology, Incorporated (VLSI) (all appellants except TI referred to collectively as respondents) appeal the final determination of the United States International Trade Commission (Commission or ITC) in *In the Matter of Certain Plastic Encapsulated Integrated Circuits*, Inv. No. 337-TA-315, USITC Pub. No. 2574 (Nov. 1992). The Commission found that TI's U.S. Patent No. 4,043,027 (the '027 patent) was not invalid and that certain plastic encapsulated circuits imported by the respondents infringed claims 12, 14 and 17 of the '027 patent. The Commission determined that importation of these infringing devices violated section 337 of the Tariff Act of 1930, as amended, (codified at 19 U.S.C. Section 1337 (1988)). The Commission, therefore, issued a limited exclusion order and cease and desist orders to each of the five respondents. Respondents challenge the issuance of these orders and TI seeks additional relief. We affirm the Commission's determination.

I. Background

This case is somewhat complicated because of the numerous issues raised by TI and the respondents. Consequently, a brief background serves as a guide to our decision.

A. The Commission's Decision

On July 9, 1990, TI filed a complaint with the Commission under section 337 alleging that the respondents had engaged in unfair methods of competition and unfair acts including the importation, sale and marketing in the United States of certain plastic encapsulated circuits produced abroad by a process purportedly covered by claims 1, 12, 14 and 17 of the '027 patent.

*1021 After evaluating TI's complaint, the Commission instituted an investigation and assigned it to an administrative law judge (ALJ). Following a hearing, the ALJ issued a 282 page initial decision determining that the respondents had violated section 337 in the unlawful importation or sale of certain plastic encapsulated integrated circuits produced overseas by a process that if practiced in the United States would infringe claims 12 and 14, but not claims 1 and 17, of the '027 patent.

The ALJ determined, *inter alia*, that claim 14 was literally infringed by integrated circuits encapsulated

using an "opposite-side gating process." He also determined that claim 12 was infringed by integrated circuits encapsulated using the opposite-side gating process under the doctrine of equivalents. The ALJ determined that none of the claims was literally infringed by integrated circuits encapsulated using a "same-side gating process" and that prosecution history estoppel precluded TI from asserting that integrated circuits encapsulated using the same-side gating process infringed claim 12 under the doctrine of equivalents. With respect to validity, the ALJ determined that the '027 patent was not invalid for obviousness, anticipation, failure to reveal best mode, or obviousness-type double patenting. The ALJ further determined that Analog had acquired a limited license from TI, but that the existence of that license did not provide Analog with a complete defense to the section 337 action.

On December 3, 1991, the Commission decided to review the ALJ's initial decision only on the issues of obviousness, construction of claim 17, infringement of claim 17 and whether claim 17 is practiced by the domestic industry. On that date all unreviewed portions of the ALJ's initial decision were adopted by the Commission. 19 C.F.R. Section 210.53(h) (1992). On February 18, 1992, the Commission issued its orders on the basis of a 46 page opinion deciding the issues under review. The Commission again determined that the invention of claims 12, 14, and 17 of the '027 patent would not have been obvious. The Commission construed claim 17 in the same manner as the ALJ, but found that as a factual matter some of Analog's and VLSI's circuits, known as "8-lead" circuits, literally infringed claim 17. Consequently, the Commission issued the limited exclusion order prohibiting all respondents from importing 'integrated circuits manufactured abroad using the opposite-side gating process covered by claims 12 and 14 of the '027 patent and prohibiting Analog and VLSI from importing circuits manufactured abroad using that process covered by claim 17 of the '027 patent. The Commission also issued a cease and desist order to each respondent prohibiting them from selling their inventory unless the sale is for reexport. The President did not disapprove the determination, so the Commission's actions became final on April 19, 1992. 19 U.S.C. Section 1337 (j)(4) (1988).

B. The Patented Claims and the Accused Processes
TI's '027 patent claims a process for encapsulating electronic components in plastic through a process called transfer molding. The process claimed in the '027 patent permits a semiconductor to be encapsulated in plastic without damaging the

semiconductor or the wires that provide the electrical connection between the semiconductor device and the metal leads which extend outside the molded package. Claims 12, 14 and 17 of the '027 patent are at issue on appeal.

Claim 12 The process for encapsulating a semiconductor device comprising:

electrically connecting each of the electrical terminals of the device to a conductor and mechanically attaching a portion of said device to at least one of the conductors for support;

disposing the conductors generally in a common plane;

disposing the device and a major portion of the means for making electrical connection between the terminals and the conductors generally on one side of the plane;

disposing the device and portions of the conductors in a mold cavity; and

holding the ends of the conductors extending from the mold cavity while injecting a fluid insulating material into the mold cavity on the other side of the plane to subsequently solidify and embed said device, the fluid insulating material being injected into a portion of the cavity remote from the device and the means electrically connecting the terminals of the device to the conductors, whereby the fluid will not directly engage the device and electrical connection means at high velocity, and the conductors will be secured against appreciable displacement by the fluid.

Claim 14 A process of encapsulating a semiconductor device comprising:

providing electrical connections between electrical terminals of the device and a plurality of conductors arranged in a substantially common plane, said device *1022 and the thusly provided electrical connections thereto being disposed on one side of said plane,

disposing the device and portions of the conductors in a mold cavity, and

holding the conductors while injecting a fluid insulating material into the mold cavity for subsequently solidifying and embedding said device,

the fluid insulating material being injected into a portion of the cavity on the opposite side of said plane

to preclude direct high velocity engagement between the fluid and the device and the electrical connections thereto.

Claim 17 A process of encapsulating a semiconductor device comprising:

providing electrical connections between electrical terminals of the device and a plurality of conductors arranged substantially parallel to one another, said device and the thusly provided electrical connections thereto being provided on one side of said conductors,

disposing the device and portions of the conductors in a mold cavity, and

holding the conductors while injecting a fluid insulating material into the mold cavity for subsequently solidifying and embedding said device,

the fluid insulating material being injected into a portion of the cavity on the opposite side of said conductors to preclude direct high velocity engagement between the fluid and the device and the electrical connections thereto.

The Commission found that respondents import encapsulated semiconductors produced using two accused processes. No party disputes these findings. Both processes share certain common characteristics. They employ a stamped lead rectangular metal frame as a structure for mounting, assembling and handling the semiconductor devices. The semiconductor die is attached to the lead frame at the "die pad" with heat conducting adhesive. The die pad supports the die, but does not conduct electricity. Terminals on each die are connected to the frame leads with fine whisker wires. The leads generally radiate outward from the die in a "starburst" pattern. The lead frame and attached die pad are placed in a mold cavity with one end of each lead extending out of the cavity. The other end of each lead is cantilevered inside the cavity like a diving board. The upper and lower halves of the die are clamped together holding one end of each conductor. A fluid insulating material is injected into the mold cavity.

The processes differ in the way in which the plastic encapsulating fluid is introduced into the mold cavity. In the process known as opposite-side gating or "bottom gating," the fluid is introduced through a cavity on the opposite side of the lead frame from the semiconductor die and wires. In the process known as same-side gating or "top gating," the plastic encapsulating fluid is introduced into the mold cavity

on the same side or the leads as the semiconductor die and the wires.

C. IssuesAppealed

TI and the respondents appeal various portions of the Commission's determination. TI and Analog contend that the Commission incorrectly construed claims 12, 14 and 17. According to TI these claims do not contain a specific gate limitation. TI also argues that claim 17's parallel limitation does not apply to all conductors. Analog contends that the Commission incorrectly determined that the "whereby" or "to preclude" clauses in claims 12, 14 and 17 do not create an additional limitation. With respect to infringement, TI appeals the Commission's findings of noninfringement, asserting that the Commission erred in failing to find that the same-side gating process literally infringes claims 12, 14 and 17 and that all of respondents' devices produced using the opposite-side gating process literally infringe claim 17. TI also argues that, as a matter of law, it established that the same-side gating process infringes claims 12, 14 and 17 under the doctrine of equivalents. Respondents appeal the Commission's infringement determinations arguing that the Commission erred when it determined that the opposite-side gating processes infringe claim 12 under the doctrine of equivalents, that the opposite-side gating processes literally infringe claim 14 and that the 8-lead devices manufactured using an opposite-side gating process literally infringe claim 17. Respondents also appeal the Commission's determinations that the '027 patent is not invalid as obvious, anticipated, or for obviousness-type double patenting. No issue is raised on appeal regarding claim 1. Finally, TI appeals the Commission's determination that Analog is a licensee of TI while Analog contends that the Commission abused its discretion when it decided to include Analog in its exclusion order and issue Analog a cease and desist order despite the existence of Analog's license. Analog further contends that the Commission could not include Analog in its remedial orders as a matter of law because it is a member of the domestic industry.

*1023 II. Infringement

Patent infringement analysis is a two-fold inquiry: a threshold question of claim interpretation followed by a determination of whether the properly construed claims encompass the accused structure or process. *Mannesmann Demag Corp. v. Engineered Metal Prods. Co.*, 793 F.2d 1279, 1282, 230 USPQ 45, 46 (Fed. Cir. 1986).

A. Interpretation of the Claims

Claim interpretation is a question of law that this

court reviews *de novo*. *Key Mfg. Group, Inc. v. Microdot, Inc.*, 925 F.2d 1444, 1448, 17 USPQ2d 1806, 1809 (Fed. Cir. 1991). Claim interpretation involves a review of the specification, the prosecution history, the claims (including unasserted as well as asserted claims) and, if necessary, other extrinsic evidence, such as expert testimony. *Hormone Research Found. v. Genentech, Inc.*, 904 F.2d 1558, 1562, 15 USPQ2d 1039, 1043 (Fed. Cir. 1990), cert. dismissed, 111 S. Ct. 1434 (1991).

1. The gate limitation in claims 12, 14 and 17

Claim 12 requires disposing the conductors generally in a common plane and "injecting a fluid insulating material into the mold cavity on the other side of the plane." Claim 14 similarly requires arranging the conductors in a substantially common plane and injecting a fluid insulating material on the opposite side of the plane. Claim 17 requires injecting the fluid insulating material on the opposite side of the conductors. Relying on the claim language, the specification in conjunction with its drawings, the prosecution history and the testimony of the inventors, the Commission construed claims 12, 14 and 17 to claim a gate specifically located on the other (claim 12) or opposite side (claim 14) of the plane from the semiconductor device and its electrical connections, or, in the case of claim 17, on the opposite side of the conductors from the electrical connections.

TI contends that the Commission's claim construction is erroneous. According to TI claims 12, 14 and 17 only require that the fluid be injected on the opposite side of the plane, not that the gate be located on the opposite side of the plane. Thus, according to TI, injection of fluid insulating material from any point remote from the semiconductor's electrical connections meets the claim language.

TI's contorted construction of the claim language cannot be correct. It cannot seriously be suggested that the location for the injection of the plastic into the mold differs from the location of the gate through which the plastic is injected. As the Commission noted, construing the claims not to refer to a specific gate location as argued by TI would render the disputed claim language mere surplusage. Moreover, the specification, prosecution history, and the testimony of the inventors and experts all support the conclusion that the fluid insulating material is injected through a gate on the other, or opposite side, of the electrical conductors. Indeed, to construe the claims in the manner suggested by TI would read an express limitation out of the claims. This, we will not do

because " [c]ourts can neither broaden nor narrow claims to give the patentee something different than what he has set forth." *Autogiro Co. of Am. v. United States*, 384 F.2d 391, 396, 155 USPQ 697, 701 (Ct. Cl. 1967).

2. The "whereby" and "to preclude" clauses in claims 12, 14 and 17

[1] Claim 12 concludes with a clause that states "whereby the fluid will not directly engage the device and electrical connection means at high velocity, and the conductors will be secured against appreciable displacement by the fluid." Claims 14 and 17 conclude with the clause "to preclude direct high velocity engagement between the fluid and the device and the electrical connections thereto." The Commission determined that the "whereby" clause in claim 12 and the "to preclude" clauses in claims 14 and 17 only express the necessary results of what is recited in the claims. For this reason, the Commission gave them no weight in its infringement analysis.

Respondents assert that the "whereby/to preclude" clauses of these claims establish specific further limitations to the claims relating to the velocity of the fluid inside the mold and the manner of securing the conductors which must be met in the respondents' opposite-side gating processes in order for those processes to infringe the claims of the '027 patent. We disagree. A "whereby" clause that merely states the result of the limitations in the claim adds nothing to the patentability or substance of the claim. *Israel v. Cresswell*, 166 F.2d 153, 156, 76 USPQ 594, 597 (CCPA 1948). The "whereby/to preclude" clauses of claims 12, 14 and 17 merely describe the result of arranging the components of the claims in the manner recited in the claims: the fluid does not directly engage the device and the electrical connection means because the gate through which the fluid enters is remote from them; the conductors are secured against appreciable *1024 displacement by the fluid because they are clamped in notches by the upper and lower halves of the mold die. Therefore, the Commission correctly determined that the "whereby/to preclude" clauses do not contain any limitations not inherent to the process found in claims 12, 14 and 17.

3. The "parallel" limitation in claim 17

[2] Claim 17 claims "electrical connections between electrical terminals of the device and a plurality of conductors arranged substantially parallel to one another []." Relying on the language of the claims,

the specification and its drawings, and witness testimony, the Commission, on review, construed claim 17 to require parallelism among all conductors used, i.e., all of the two or more conductors used must be arranged parallel to one another over a significant portion of their lengths.

On appeal, TI contends that the claim element "a plurality of conductors arranged substantially parallel to one another" is met so long as the accused device contains any two conductors that are substantially parallel to one another. Essentially, TI reads "plurality" to mean "two" and the terms "to one another" to mean "to each other." Once again, the construction TI proposes must fail because it would read a limitation out of the claim. The claim language does not describe a relationship between a conductor and one other conductor. Rather, the specification, the drawings and the testimony of TI's own witness require that each conductor be substantially parallel to all the other conductors used in the device. Thus, the Commission correctly determined that all the conductors must be substantially parallel to one another.

B. Application of Claims to Processes

Having determined that the Commission correctly construed the claims, we next review whether the Commission also correctly decided the myriad of infringement allegations. The question of infringement, either literal or by equivalents, is a factual one. *SRI Int'l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1125, 227 USPQ 577, 589 (Fed. Cir. 1985) (in banc). We review the Commission's factual findings under the substantial evidence standard. 19 U.S.C. Section 1337(c) (1988) (persons adversely affected by certain final Commission determinations may appeal to the Federal Circuit for review in accordance with chapter 7 of Title 5 of the U.S. Code); *SSIH Equip. S.A. v. United States Int'l Trade Comm'n*, 718 F.2d 365, 371-72, 218 USPQ 678, 684 (Fed. Cir. 1983).

1. Same-side processes

The Commission determined that semiconductor products made using same-side gating processes imported by respondents did not literally infringe claims 12, 14 and 17 because they did not meet the opposite-side gate limitation found in these claims. The Commission also determined that prosecution history estoppel precluded TI from expanding the opposite-side gate limitation in claim 12 to include same-side gating. Thus, same-side gating products could not infringe claim 12 under the doctrine of

equivalents.

a. Literal infringement

On appeal, TI contends that the Commission's determination that products made using same-side processes do not literally infringe claims 12, 14 and 17 should be reversed. Having held that the Commission did not err in construing the claims to contain a specific gate limitation, we also affirm the Commission's determination that products made using the same-side gating process do not literally infringe claims 12, 14 and 17. The Commission's finding that these products are not produced using an opposite-side gating process is based on substantial evidence.

b. Doctrine of equivalents

Infringement under the doctrine of equivalents has been "judicially devised to do equity" in situations where there is no literal infringement, but liability is nevertheless appropriate to prevent what is in essence a pirating of the patentee's invention. *Loctite Corp. v. Ultraseal, Ltd.*, 781 F.2d 861, 870, 228 USPQ 90, 96 (Fed. Cir. 1985) (citing *Hughes Aircraft Co. v. United States*, 717 F.2d 1351, 1361, 219 USPQ 473, 480 (Fed. Cir. 1983)). Prosecution history estoppel is a policy oriented limitation to the range of equivalents available to the patentee, a limitation that we review as a question of law. Prosecution history estoppel will not allow the patentee to extend the range of equivalents accorded the device or process to subject matter relinquished during prosecution of the patent. *Id.*, 228 USPQ at 96 (citing *Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 900, 221 USPQ 669, 678 (Fed. Cir.), cert. denied, 469 U.S. 857 [225 USPQ 792] (1984)).

The Commission found that the inventors had based their argument for claim 12's patentability on the opposite-side gating limitation it contained. Having done so while prosecuting the '027 patent, TI was estopped from asserting that the same-side gating process used by respondents is the equivalent of *1025 the opposite-side gating specified in claim 12. The Commission therefore concluded that the respondents' same-side gated processes could not be found to infringe claim 12 of the '027 patent under the doctrine of equivalents.

Determining the limitations on the doctrine of equivalents is a question of law which we review *de novo*. *Id.*, 228 USPQ at 96. On appeal, TI argues that no prosecution history estoppel exists because there is no basis in the file history to conclude that TI gave up

coverage of same-side gated processes. More particularly, TI asserts that with no citation of a prior art reference disclosing the same-sided process the inventors cannot be deemed to have disclaimed or disavowed same-side gating.

We must decide whether the Commission erred as a matter of law in determining that the prosecution history indicates that the '027 patent applicants disclaimed or disavowed same-side gating. The prosecution history to which we may look includes "[t]he entire record of proceedings in the Patent and Trademark Office, including representations made to the Examiner that the invention is patentable. . ." *Jonsson v. Stanley Works*, 903 F.2d 812, 817, 14 USPQ2d 1863, 1868 (Fed. Cir. 1990) (citing Standard Oil Co. v. American Cyanamid Co., 774 F.2d 448, 452, 227 USPQ 293, 296 (Fed. Cir. 1985)).

The '027 patent issued on August 23, 1977. Its history traces to December 16, 1963, when inventors Robert O. Birchler and E. W. Williams filed the grandparent application, Application No. 331,006, entitled "Process for Encapsulating Electronic Components in Plastic." On October 17, 1968, the inventors filed Divisional Application No. 768,311, the '027 patent's parent application, which was followed by Continuation Application No. 384,768 on July 30, 1973. That continuation application matured into the '027 patent. It is the interaction between the inventors and the patent examiner during the prosecution of the '006 application that is of interest in this appeal.

[3] As a general proposition, prosecution history estoppel is based upon a showing that an applicant amended a claim to avoid a cited prior art reference. *Hughes Aircraft*, 717 F.2d at 1362, 219 USPQ at 481. TI correctly states that none of the references cited by the examiner disclosed same-side gating and the inventors never amended claim 12 to add the opposite-side gating limitation to distinguish and overcome a prior art reference. Amendment of a claim in light of a prior art reference, however, is not the *sine qua non* to establish prosecution history estoppel. Unmistakable assertions made by the applicant to the Patent and Trademark Office (PTO) in support of patentability, whether or not required to secure allowance of the claim, also may operate to preclude the patentee from asserting equivalency between a limitation of the claim and a substituted structure or process step. *Hormone Research*, 904 F.2d at 1567, 15 USPQ2d at 1046; *Kinzenbaw v. Deere & Co.*, 741 F.2d 383, 389, 222 USPQ 929,

933 (Fed. Cir. 1984), cert. denied, 470 U.S. 1004 (1985). Application of this test requires, in each case, examination of the prosecution history taken as a whole.

[4] The prosecution history of the '027 patent shows that the inventors placed special emphasis on locating the gate on the opposite side of the mold from the semiconductor because locating the gate on the same-side of the mold did not work. An invention disclosure form placed by the inventors in the PTO file reads:

In order to transfer mold successfully, it was found that the gate placement was critical. The first experiment placed the gate in the top of the unit, which is the conventional location for end gating. . . .

The results were most unsatisfactory with the emitter and base lead being broken as the cavity filled. It was found during the same experiment that better results were obtained when the unit was in the top half of the mold so it did not see the plastic as it is initially introduced to the cavity.

Consequently, the disclosure form and the inventor's notebook, also of record, assert that one of the four important features of the invention was that the "gate is in the bottom half [opposite-side] of the mold, and the device in the top." The importance of opposite-side gating was also emphasized in the figure attached to the invention disclosure form, a drawing that eventually became Figure 5 of the '027 patent. The drawing shows the plastic insulating material, after injection in the side opposite from the semiconductor, flowing into the bottom of the mold cavity and then flowing up around the device into the top half of the mold cavity. *In toto*, the invention disclosure form explains that same-side gating was known in the molding art, and that the inventors were certain that same-side gating could not achieve their desired invention. The inventors' own assumptions provided the motivation for purposeful exclusion of same-side gating from claim 12. As far as they were concerned same-side gating in transfer molding was an obvious but unworkable limitation. The inventors first tried the "conventional" same-side gate location but discovered that it was opposite-*1026 side gating that produced usable encapsulated products. Thus, when the examiner rejected claim 12's predecessor claims in the '006 application, claims 21 and 22, as obvious in view of three prior art references, the inventors argued that it was the organization of the electrical connections in a common plane, with the conductor wires being located on one side of the plane and the plastic fluid

being injected into the mold on the opposite side of the plane that made the claim patentable:

none of these references alone or in combination in any way show or suggest the step of injecting the fluid insulating material into a mold cavity on an opposite side of the common plane defined by the conductor wires from the side on which the device and a major portion of the means making the electrical connection between the device and the conductor wires are disposed.

By expressly stating that claim 12 was patentable because of the opposite-side gating limitation, particularly in light of their previous admission that same-side gating was known in the art, the inventors unmistakably excluded the same-side gating as an equivalent. Having represented that same-side gating does not work, and having distinguished cited prior art as not teaching the functional opposite-side gated process, TI cannot foreclose reliance upon its unambiguous surrender of subject matter. See Standard Oil Co., 774 F.2d at 452-53, 227 USPQ at 296 (metallic copper represented in specification as "ineffective," and "outside [the] claims" in response to examiner's rejection). Such foreclosure is impermissible because "other players in the marketplace are entitled to rely on the record made in the Patent Office in determining the meaning and scope of the patent." Lemelson v. General Mills, Inc., 968 F.2d 1202, 1208, 23 USPQ2d 1284, 1289 (Fed. Cir. 1992). For these reasons, the Commission did not err in concluding that TI is estopped from asserting that a same-side gating process is the equivalent of the opposite-side gating process in claim 12.

TI draws our attention to the fact that the Commission made no specific determination as to the range of gating equivalents available to TI under claims 14 and 17 of the '027 patent. If the Commission's silence on that point is error, the error necessarily is harmless because the prosecution history estoppel we hold proven on claim 12 is equally applicable to claims 14 and 17.

2. Opposite-side processes

The Commission determined that semiconductor products made using opposite-side gating processes imported by respondents infringed claim 12 under the doctrine of equivalents, infringed claim 14 literally, and that Analog's and VLSI's 8-lead semiconductor products made using opposite-side gating processes literally infringed claim 17. Respondents challenge all three of these infringement determinations on appeal.

TI challenges the claim 17 infringement finding asserting that it should cover more types of semiconductors.

a. Claim 12 and doctrine of equivalents infringement by opposite-side processes

In determining that the respondents' products made using an opposite-side gating process infringe claim 12 of the '027 patent under the doctrine of equivalents, the Commission found that the only limitation of claim 12 not literally found in the respondents' opposite-side encapsulating processes is the attachment of the semiconductor device to a conductor for support. The Commission found that the die pad in respondents' products is the equivalent of the supporting conductor, because it performs exactly the same function in exactly the same way to achieve exactly the same result. Because the accused processes merely divided the two functions of the supporting conductor (support of the die and electrical connection thereof to an external circuit) between two separate components of their processes, the processes infringed the claim.

On appeal, respondents contend that the Commission's determination that devices made using opposite-side gating processes infringe claim 12 under the doctrine of equivalents is not based on substantial evidence because (1) the accused processes do not meet the whereby limitation; (2) the accused processes do not have an equivalent to the support conductor; and (3) the die pad in the accused processes does not meet the common plane limitation. Further, infringement is precluded by the reverse doctrine of equivalents.

Because we agree with the Commission that the whereby clause in claim 12 is not an additional limitation, we reject the contention that infringement cannot be found provided that all limitations of the claim are present in the accused process. Substantial evidence supports the Commission's determination that the products made using opposite-side gating processes infringe claim 12 under the doctrine of equivalents: they contain the equivalent of the claimed support conductor and they meet the common plane limitation. Claim 12 requires, *inter alia*, that the device be mechanically connected to a conductor for support and electrically connected to the same or another conductor to conduct electricity. Further, claim 12's conductors are to be generally disposed in a *1027 common plane. The die pad in respondents' process is the functional equivalent of claim 12's supporting conductor limitation: it supports the

semiconductor, as a mechanical attachment, in order to hold the semiconductor in place. Respondents' die pad need not, and does not, function as a conductor; it does not become a conductor simply because it assumes the support function. Therefore, the die pad need not meet the common plane limitation of claim 12. That limitation is met by respondents' conductors which are disposed in a common plane.

[5] Furthermore, we will not consider Analog's and VLSI's reverse doctrine of equivalents argument in this appeal because they waived the right to pursue this argument while at the Commission. Analog, arguing the infringement issues for all respondents, made a reverse doctrine of equivalents argument at the Commission in its post-hearing brief submitted to the ALJ. The ALJ made no specific findings on this defense in his initial decision, but Analog did not raise this "defect" in the ALJ's decision in its petition for review submitted to the Commission. Analog contends that it raised the issue in its petition for review when it asserted that its devices did not literally infringe claim 17. We disagree. One does not make a reverse doctrine of equivalents argument simply by mounting a defense to literal or doctrine of equivalents infringement. See *Rolls-Royce Ltd. v. GTE Valeron Corp.*, 800 F.2d 1101, 1108, 231 USPQ 185, 190 (Fed. Cir. 1986). The Commission's rules governing section 337 investigations deem abandoned any issue not raised in the petition for review. 19 C.F.R. Section 210.54(a)(2) (1992). Respondents having failed to alert the Commission to a possible error in the ALJ's initial decision, this court will not now examine the issue. *Allied Corp. v. United States Int'l Trade Comm'n*, 850 F.2d 1573, 1580, 7 USPQ2d 1303, 1308 (Fed. Cir. 1988), cert. denied, 488 U.S. 1008 (1988).

b. Claim 14 and literal infringement by opposite-side processes

The Commission determined that claim 14 is literally infringed by products made using opposite-side gating processes having found that respondents' processes meet all the limitations of claim 14.

Respondents contend that the Commission's claim 14 infringement determination is not based on substantial evidence because (1) the accused processes do not meet the "to preclude" clause limitation; (2) the die pad in the accused processes does not meet the common plane limitation; and (3) literal infringement is precluded by the reverse doctrine of equivalents.

None of these assertions merits much extended discussion. As explained above, the "to preclude" clause is not an additional limitation that the accused processes must meet. Further, claim 14, unlike claim 12, does not have a supporting conductor limitation so the supporting die pad in the accused processes need not be aligned with the conductors in a generally common plane in order to literally infringe claim 14. There is substantial evidence to support the finding that the conductors in the respondents' devices meet the common plane limitation. Finally, as explained above, respondents have waived their reverse doctrine of equivalents argument.

c. Claim 17 and 8-lead opposite-side devices

TI, Analog and VLSI appeal the Commission's determination that 8-lead products made using opposite-side processes literally infringe claim 17. The Commission determined that such products literally infringed claim 17 because all of their conductors are "arranged parallel over a significant portion of the conductors' length."

TI contends that all products made using opposite-side processes literally infringe claim 17 provided the claim is construed to require only that two conductors be substantially parallel to each other. Since we have held that the Commission did not err in construing the claim to require that all the conductors must be substantially parallel to each other, TI's challenge to the correctness of this infringement determination must fail.

Analog and VLSI contend that the Commission's determination that their 8-lead devices (produced using opposite-side gating processes) literally infringe claim 17 is not based on substantial evidence because (1) the accused processes do not meet the "to preclude" limitation; (2) the presence of a die pad in such processes means that they fail to meet the "all parallel conductor" limitation; and (3) literal infringement is precluded by the reverse doctrine of equivalents.

Analog's and VLSI's arguments are meritless. As explained above, the "to preclude" clause is not an additional limitation that the accused processes must meet. Further, claim 17 does not contain the support limitation found in claim 12. Therefore, there is no need to consider whether the die pad meets the "all parallel" limitation, a limitation which is addressed to the conductors not to the die pad. Moreover, there is substantial evidence to support the Commission's determination that the conductors on the 8-lead

devices meet the "all parallel limitation" and therefore literally infringe claim 17. Finally, *1028 as explained above, respondents have waived their reverse doctrine of equivalents argument.

III. Validity

A patent is presumed valid and the party asserting invalidity must overcome this presumption by clear and convincing evidence establishing facts which support the conclusion of invalidity. *Intel Corp. v. United States Int'l Trade Comm'n*, 946 F.2d 821, 834, 20 USPQ2d 1161, 1172 (Fed. Cir. 1991). Respondents challenge the Commission's determination that the '027 patent is not invalid on three grounds, that the patent is obvious under section 103, that it is anticipated under section 102, and that it is invalid for obviousness-type double patenting over U.S. Patent No. 3,716,764 (the '764 patent). Respondents do not contend, as they did before the Commission, that the '027 patent is invalid for failure to reveal the best mode.

A. Anticipation

A patent may be invalid as anticipated due to the prior conception and reduction to practice by another of the patentee's invention. 35 U.S.C. Section 102(g) (1988). Anticipation is a question of fact. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1379, 321 USPQ 81, 90 (Fed. Cir. 1986), cert. denied, 480 U.S. 947 (1987). We review the Commission's factual determinations under the substantial evidence standard. *SSI/H*, 718 F.2d at 371-72, 218 USPQ at 684.

Respondents assert on appeal, as they did before the Commission, that work performed by Mr. Robert Helda and Mr. Milan Lincoln at Motorola anticipated the '027 patent. The Commission determined that the Helda-Lincoln invention was not reduced to practice until November 6, 1963, after Mr. Birchler and Mr. Williams reduced the 1027 process to practice in late September 1963 at Texas Instruments. Therefore, the Commission found that the Helda-Lincoln invention is not prior art and cannot anticipate the '027 patent.

On appeal respondents do not argue that the Helda-Lincoln reduction to practice date of November 6, 1963, is erroneous. Instead, they argue that the reduction to practice date of the '027 process in late September 1963 is erroneous because corroborating evidence only supports a reduction to practice date of December 12, 1963, the filing date of the '027 patent. If the '027 patent's process were reduced to practice on that date, then the Helda-Lincoln invention prior art would anticipate the '027 patent.

Respondents' arguments are to no avail. Reviewing this issue *de novo*, *DSL Dynamic Sciences v. Union Switch & Sianal, Inc.*, 928 F.2d 1122, 1125, 18 USPQ2d 1152, 1154 (Fed. Cir. 1992), we conclude that the '027 patent's reduction to practice date of late September is corroborated by the evidence and is not erroneous. The claims of the '027 patent therefore cannot be anticipated by the Helda-Lincoln invention.

B. Obviousness

A patent is invalid if the differences between the subject matter patented and the prior art are such that the patented subject matter as a whole would have been obvious at the time of invention to a person having ordinary skill in the art. 35 U.S.C. Section 103 (1988). Obviousness is determined as a question of law based on a series of factual determinations, including (1) the scope and content of the prior art, (2) the differences between the art and the claims at issue, (3) the level of ordinary skill in the art and (4) any other objective evidence. *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966); see, e.g., *Allen Archery Inc. v. Browning Mfg. Co.*, 819 F.2d 1087, 1092, 2 USPQ2d 1490, 1493 (Fed. Cir. 1987). We review the Commission's factual determinations under the substantial evidence standard. *SSIH*, 718 F.2d at 371-72, 218 USPQ at 684. We then review the legal conclusion of nonobviousness *de novo*. *Intel Corp.*, 946 F.2d at 834, 20 USPQ2d at 1173.

The Commission having correctly found that the Helda-Lincoln invention was not reduced to practice before the '027 process, there is no dispute about the scope and content of the prior art. The Commission found that the prior art includes: (1) the Doyle process patent; (2) the Lanzl patent; (3) the Sylvania transistor as described in the Carruth and Sussman article; (4) the Zecher article; and (5) the Burns patent.

The Commission, reviewing the ALJ's initial decision, found the '027 patent nonobvious because it found nothing in the Sylvania, Lanzl, Burns, or Zecher references to suggest making the leads in the Doyle reference planar while injecting molten plastic from the opposite side of the plane to produce an inexpensive semiconductor. The Commission further found that a secondary indicia of nonobviousness, long-felt need, supported its determination that the invention of the '027 patent was nonobvious.

Respondents assert that the Doyle reference teaches opposite-side gating which renders *1029 the '027 patent obvious because all the other features of the patent are included in the prior art. Further, respondents argue that there can be no long-felt need

when the period between the date of the most pertinent prior art references (here Doyle and Sylvania) and the claimed invention is very short.

[6] There is substantial evidence in the record to support the Commission's finding that the Doyle reference does not teach opposite-side gating. Moreover, we agree with the Commission that the references in combination do not suggest the invention as a whole claimed in the '027 patent. Absent such suggestion to combine the references, respondents can do no more than piece the invention together using the patented invention as a template. Such hindsight reasoning is impermissible. *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988). Thus, the Commission's conclusion that the '027 patent would not have been obvious in view of these prior art references is not erroneous.

[7] With respect to long-felt need respondents incorrectly argue that long-felt need is analyzed only as of the date of the "most pertinent" prior art references. Rather, long-felt need is analyzed as of the date of an articulated identified problem and evidence of efforts to solve that problem. The Commission found that semiconductor manufacturers began searching for a means to mass produce inexpensive transistors in the early 1960s. The industry aggressively embraced the technique of packaging components in plastic by transfer molding between 1957 and 1963. Early attempts encountered problems, such as damaging the devices when using high velocity molding compounds and multiple inventors were working on the problem. For these reasons, there is substantial evidence to support the Commission's finding of long-felt need for the process claimed in the '027 patent.

C. Obviousness-type double patenting

Twenty months after inventors Birchler and Williams filed the '006 patent application, the examiner determined that the amended claims of the '006 application described three distinct inventions. He restricted each claim to one of three groups. The group I claims were drawn to a semiconductor device, the group II claims to an injection molding process for semiconductor devices, and the group III claims to "a lead frame for semiconductor devices and a method for securing semiconductor crystals to that frame, i.e. an intermediate product for use in producing the final semiconductor device." The group I claims resulted in patent number 3,439,238. The group III claims eventually issued as the '764 patent. The group II

claims eventually issued as the '027 patent.

The Commission determined that claims 12, 14 and 17 of the '027 patent were not invalid for obviousness-type double patenting. When the examiner restricted the claims to three groups, he included in group III a claim associated with transfer molding, although he described that group not to include transfer molding. Nonetheless, the Commission concluded that the actual restriction groupings, not the written descriptions thereof, control for purposes of ascertaining if subsequent amendments to original claims are consonant with the substantive restrictions drawn by the examiner.

On appeal, respondents again argue that including the transfer molding claim (claim 17) in the '764 patent failed to maintain consonance with the restriction requirement the examiner imposed on the '027 patent's grandparent application. Having failed to maintain consonance with the restriction requirement, claims 16 and 17 of the '764 patent become prior art which, when combined with the Doyle reference render claims 12, 14 and 17 of the '027 patent invalid.

[8] Double patenting is a question of law that this court reviews *de novo*. *General Foods Corp. v. Studiengesellschaft Kohle mbH*, 972 F.2d 1272, 1277, 23 USPQ2d 1839, 1843 (Fed. Cir. 1992). A patentee may not remove a patent from consideration as a prior art reference pursuant to 35 U.S.C. section 121 (1988) where the principle of consonance is violated. *Symbol Technologies, Inc. v. Opticon, Inc.*, 935 F.2d 1569, 1579, 19 USPQ2d 1241, 1249 (Fed. Cir. 1991). In order for consonance to exist, "the line of demarcation between the 'independent and distinct inventions' that prompted the restriction requirement" must be maintained. *Gerber Garment Technology, Inc. v. Lectra Sys., Inc.*, 916 F.2d 683, 688, 16 USPQ2d 1436, 1440 (Fed. Cir. 1990). We agree with the Commission's determination that the post-restriction addition of claim 17 to the '764 patent is consonant with the grouping restriction actually imposed by the examiner. Consequently, the protection of section 121 applies and the claims of the later issued '027 patent are protected from an allegation of double patenting. Moreover, even if there were no consonance due to a breach of the restriction requirement, respondents' contentions on the ultimate obviousness-type double patenting inquiry would fail. Claims 12, 14 and 17 of the '027 patent are patentably distinct from claim 17 of the *1030 '764 patent. See *General Foods*, 972 F.2d at 1277, 23 USPQ2d at 1843; *Symbol*, 935 F.2d at

1581, 19 USPQ2d at 1249. These claims are not so very much alike as to render claims 12, 14 and 17 of the '027 patent obvious in view of claims 16 and 17 of the '764 patent. See *Gerber*, 916 F.2d at 686, 16 USPQ2d at 1438. Claims 12, 14, and 17 of the '027 patent disclose injecting the fluid insulating material from a gate on the opposite side of the conductors. Opposite-side injection of the fluid is not disclosed in either claim 16 or 17 of the '764 patent, nor would it be obvious in light of claims 16 or 17 of the '764 patent.

IV. Issues Particular to Analog

On August 8, 1990, after the Commission instituted its investigation, Analog acquired the stock of a corporation that had entered into a cross-license agreement with TI in 1974 for several patents including the '027 patent. The license agreement provides that it is to be construed in accordance with Texas law. On November 3, 1990, Analog and that company formally merged. The Commission determined that Analog acquired this license because the agreement between TI and its licensee did not require consent from TI for the licensee to transfer to a third party acquiring substantially all the assets of the licensee.

On appeal, TI contends that the Commission's construction of the license's transferability is legally erroneous and unreasonable. Because we agree with the Commission that the contract is not ambiguous, we review this question of contract interpretation *de novo*. *Snug Harbor, Ltd. v. Zurich Ins.*, 968 F.2d 538, 541-42 (5th Cir. 1992). Because we do not find the Commission's construction of the contract to be erroneous, we affirm the Commission's determination that Analog acquired a license through the merger, a license for sales not to exceed the annual sales of licensed products being made by the original licensee at the time Analog acquired the license.

Analog is not content with the decision that it acquired a valid license from TI. Analog further argues that the Commission's failure to dismiss Analog from the investigation and its decision to issue a cease and desist order against it is erroneous because as a licensee Analog cannot be committing an unfair trade practice.

The Commission determined that Analog became licensed after the institution of its investigation, a considerable period after a violation of section 337 was alleged to have begun. The Commission found that Analog (along with the other respondents) violated section 337 by importing and selling after

importation the accused devices. The Commission then issued a cease and desist order and a limited exclusion order to Analog. These orders, however, do not apply to products licensed by TI. Analog's sales to the extent of the annual sales of the original TI licensee are not subject to the remedy fashioned by the Commission.

[9] We must affirm the Commission's choice of remedy so long as it is not arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law. In other words, "if the Commission has considered the relevant factors and not made a clear error of judgment, we affirm its choice of remedy." *Hyundai Elecs. Indus. Co. v. United States Int'l Trade Comm'n*, 899 F.2d 1204, 1209, 14 USPQ2d 1396, 1400 (Fed. Cir. 1990). Clearly, Analog's license with TI is a limited license. There is no guarantee that Analog will limit its importation of otherwise infringing devices to the amount permitted by its license. The Commission's decision to fashion a remedy that permits Analog fully to enjoy its license and prevents Analog from violating section 337 can hardly be deemed a clear error of judgment.

Analog further contends that a member of the domestic industry is immune to remedial orders under section 337, and that the Commission therefore erred as a matter of law in subjecting it, as a member of the affected domestic industry, to section 337 orders. We must determine whether the Commission correctly construed the statute in rejecting Analog's novel contention.

Statutory interpretation begins with the language of the statute. *Mallard v. United States Dist. Court for S. Dist. of Iowa*, 490 U.S. 296, 300-01 (1989). If the statute clearly expresses Congress's intent, we must give effect to the "unambiguously expressed intent of Congress." *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 843 (1984). If we determine that Congress has not directly addressed the issue, then we must determine whether the Commission's construction of the statute is permissible. *Id.*

Section 337 renders unlawful

[t]he importation into the United States, the sale for importation, or the sale within the United States after importation by the owner, importer, or consignee, of articles that--

- (i) infringe a valid and enforceable United States

patent . . . , or

(ii) are made, produced, processed, or mined under, or by means of, a process *1031 covered by the claims of a valid and enforceable United States patent [,]

provided that a domestic industry exists in the United States. 19 U.S.C. Sections 1337 (a)(1)(B), (a)(2) (1988). A domestic industry exists in the United States if there is, with respect to the articles protected by the patent

(A) significant investment in plant and equipment;

(B) significant employment of labor or capital; or

(C) substantial investment in its exploitation, including engineering, research and development, or licensing.

19 U.S.C. Section 1337(a)(3) (1988).

[10] The plain language of subsection (a)(1)(B) prohibits the importation of articles found to infringe a valid and enforceable United States patent by *any* owner, importer or consignee. There is no suggestion in the statutory language that only owners, importers, or consignees *not* in the domestic industry are subject to the remedial powers bestowed on the Commission by statute. This language is clear and its meaning is unambiguous. Membership in the domestic industry does not operate to shield an importer such as Analog from the purview of section 337. Our duty, as was the Commission's, is to enforce the statute according to its terms.

Moreover, Analog's construction of the statute, if correct, would enable members of the domestic industry to engage in conduct that would otherwise be unlawful under section 337. When Congress amended section 337 of the Tariff Act of 1930 in 1988 to provide the definition of domestic industry now found in subsection (a)(3), it stated that its purpose was "to make [section 337] a more effective remedy for the protection of United States intellectual property rights." Omnibus Trade and Competitiveness Act of 1988, Pub. L. No. 100-418, Section 1341(b), 1988 U.S.C.C.A.N. (102 Stat.) 1107, 1212 (codified at 19 U.S.C. Section 1337 note). Analog urges us to hold that some members of the domestic industry may commit unfair trade acts against other law-abiding members of the domestic industry with impunity. Such a result would make section 337 a less, not more, effective remedy. We necessarily decline to rewrite

the statute. Congress may, if it wishes, revise section 337 to provide the immunity Analog seeks. Until such time, the statutory domestic industry requirement will remain a jurisdictional prerequisite to Commission action under section 337, not, as Analog desires, a congressional pardon for unlawful conduct.

V. Conclusion

For the preceding reasons, the decision of the United States International Trade Commission to remedy a violation of section 337, predicated on its determination that the '027 patent is not invalid and is infringed by certain products made using an opposite-side gating encapsulation process is *AFFIRMED*.

C.A.Fed.

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